Mercury 8-Line Wall Pager

Contains Instructions For:

-Windows Programming

For v1.0 Synthesized Mercury 8-Line Wall Pagers

For v1.1 Windows Software

(Manual Revision 4.30)

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LIMITED WARRANTY

With respect to the physical documentation and physical electronic circuitry enclosed herein, Commtech Wireless warrants the same to be free of defects in materials and workmanship for a period of one year from the date of purchase. In the event of notification within the warranty period of defects in material or workmanship, Commtech Wireless will replace the defective diskettes, documentation and electronic circuitry. The remedy for breach of this warranty shall be limited to replacement and shall not encompass any other damages, including but not limited to loss of profit, and special, incidental, consequential, or other similar claims.

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COMPLIANCE NOTICES

AUSTRALIA: Where applicable, to ensure compliance with ACA Technical Standards, this equipment is labeled with a Telecommunications Compliance Label. For safety reasons, this equipment should only be connected to compliant telecommunications equipment in accordance with the manufacturer's instructions.

NORTH AMERICA: Where applicable, this equipment has been tested and found to comply with FCC Rules and Regulations, Part 15 with the limits of a Class B device, designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate frequency energy and if not installed and used in accordance with the instructions, may cause interference harmful to radio communications. On the base of the equipment is a label containing an FCC Registration Number, if applicable.

Table of Contents

1. INTRODUCTION

1.1 Conventions

Cross-references between sections of the manual appear in italics.

NOTE: A note preceded with this symbol indicates secondary information pertaining to the topic under discussion.

IMPORTANT: A Right-pointing arrow followed by text in this manner presents important information.

WARNING: Warnings like this alert you to the fact that you might damage your equipment or lose data if you don't follow instructions carefully.

2. PREREQUISITES

Before programming a Mercury pager, the following will be required:

2.1 Components

Each Programming Kit Contains:

- A Y089 Mercury programming cradle with parallel port cable
- A suitable power supply. (9VDC 300mA)
- A cd-rom containing the v1.1 Windows programming software
- This Mercury 8-Line pager programming manual

2.1.1 Additional Components

In order to use the programming kit, you will also require:

- At least one Mercury Wall pager that requires programming.

2.2 Pagers and Programming Details

The following information will be required to program the pagers.

- The address or cap code(s) that the pager will respond to.
- The baud rate of POCSAG data that is being transmitted.
- A start up message that will be observed when turning on the pager.

2.3 IBM compatible PC

An IBM compatible PC is required with the following attributes:

- A CD-ROM drive
- A standard parallel port. (printer port)
- A compatible Windows based operating system (Windows 95/98/2000/XP/ME)

2.4 Skills

It is recommended the programming be performed with knowledge of the following:

- Basic IBM Compatible PC knowledge.
- Sound technical working practices for electronic equipment.
- Basic understanding of POCSAG paging principles.

IMPORTANT: If you are not familiar with these concepts, contact your place of purchase before you proceed.

3. HARDWARE INSTALLATION

- Ensure you have a clear static proof work space.
- Place the Mercury programming cradle on to the bench.
- With the computer turned off, connect the supplied cable between the parallel port (printer port) on the back of the PC and the programming cradle. This is a DB25 female connector on the back of the computer case.

⚠ WARNING: Do not connect the programming lead to a computers serial port and ensure the power to the computer is disconnected before plugging in any cables.

- Plug the power adapter supplied with the kit into the programming cradle and then turn the power on to the power adapter. The LED on the cradle will illuminate.

- The rear of the pager contains a small rubber grommet. Remove the grommet on the left side to expose the programming plugs.

4. SOFTWARE INSTALLATION

The Mercury programming software can be installed and run in the following Microsoft Windows environments – Windows 95/98/ME/NT/2000/XP.

4.1 Installing the Software

The Mercury programming software is supplied on a CDROM disk. To install the software follow the directions below:

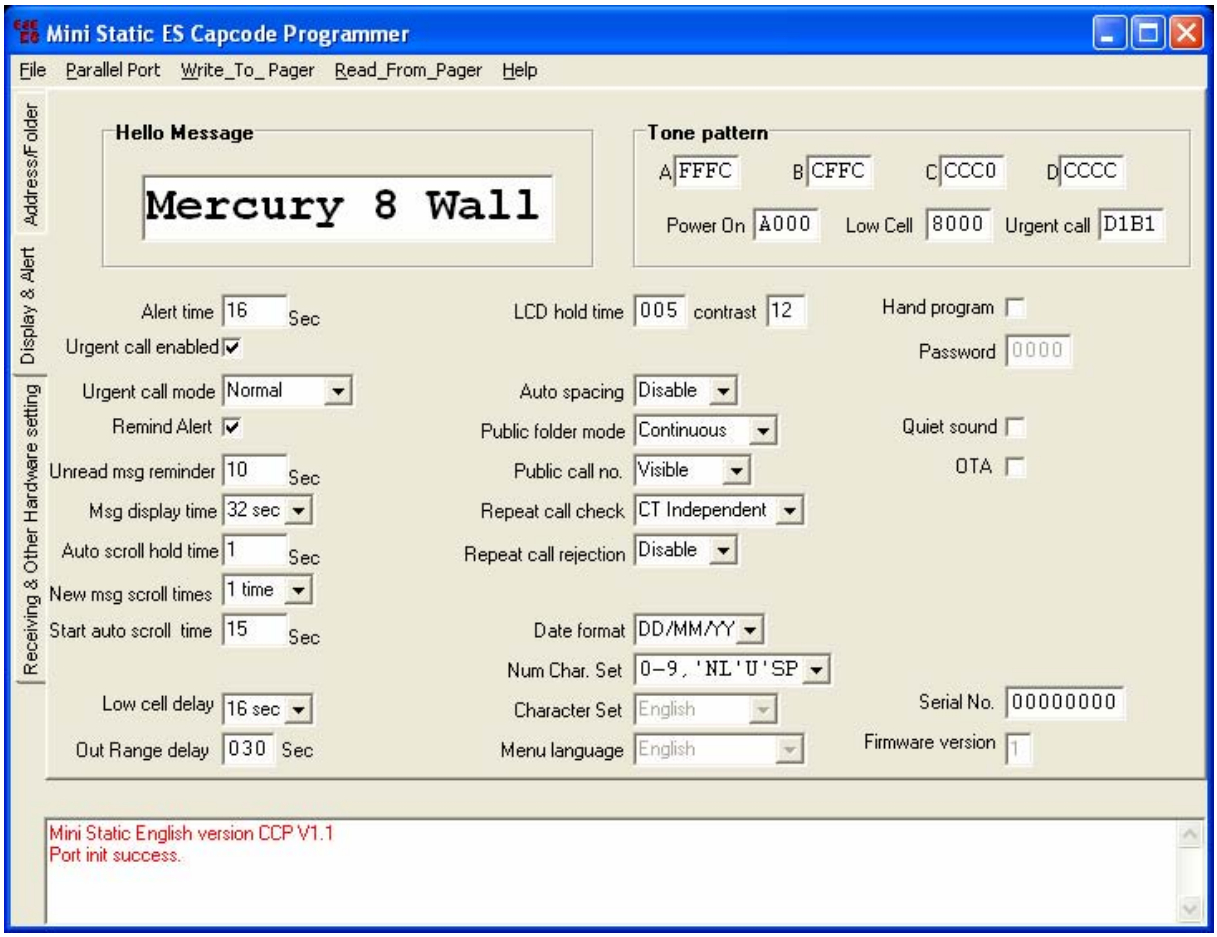
1. Boot up the computer into a compatible Windows environment.
2. Insert the CDROM disk containing the Mercury programming software into your PC's CDROM drive.
3. Using Windows Explorer browse the contents of the CDROM disk and double-click *setup.exe*
4. The installation process will then begin. Follow the on-screen prompts.

4.2 Running the Software

Once the software has successfully installed, the software can be run by clicking the shortcut on the Desktop or Start Menu. The shortcut is labeled *Mini Static ESC programmer*.

5. PROGRAMMING SOFTWARE

Once the *Mercury Programming Software* has started up, you will be presented the screen below:



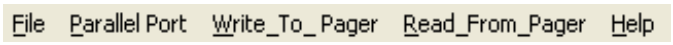
The window consists of two pages each containing different settings. The two pages are selected using the two tabs shown in the circled area above. The image below shows the second page of settings.

Each page consists of three sections. Each section will be discussed in detail below. The sections include:

1. *Menu Bar*
2. *Programming Options*
3. *Status Window*

5.1.1 Menu Bar

This consists of the *File*, *Parallel Port*, *Write_To_Pager*, *Read_From_Pager* and *Help* menus



File

From the *File* menu you can select from the three following options:

- *Open* – Open a template or previously saved .bin or .eep file ready for programming into a pager.
- *Save* – Save the current software configuration to a .bin or .eep file.
- *Exit* – Exits the program.

Parallel Port

From the *LPT* menu you can select the parallel port the programmer is connected to. Select between LPT1 and LPT2. Most PC's only contain the LPT1 parallel port.

Write_To_Pager

Once all programming options have been set and you are ready to write to a pager, click this menu. The *Status Window* will inform you whether or not the operation was successful. Make sure that it shows *Verify OK* After writing to a pager.

Read_From_Pager

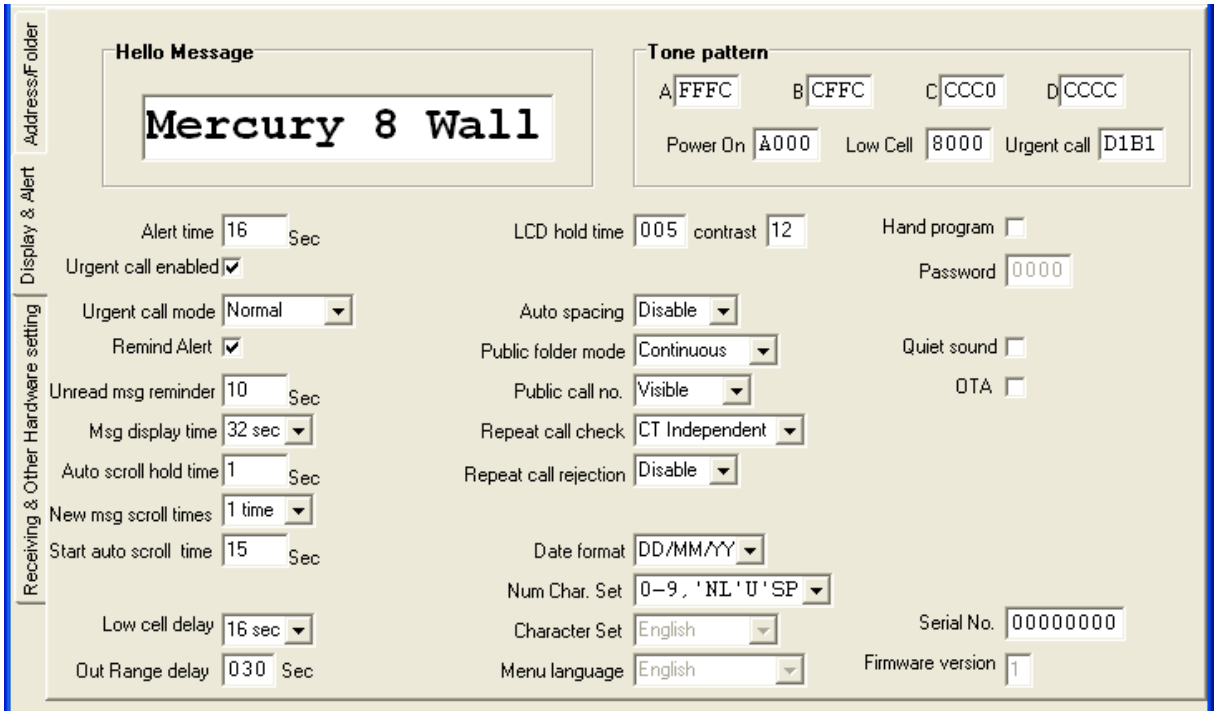
Click this menu to read the settings that are currently programmed into a pager. The settings will be loaded and displayed in the software. The *Status Window* will inform you whether or not the operation was successful.

Help

From the *Help* menu you can select *About* – This will display program version information in the *Status Window*.

5.1.2 Programming Options – Page 1

This section contains the various options that can be programmed into the pager.



Hello message

Enter a message here that you wish the pager to display when it is powered up here.

Alert time

This refers to the amount of time the pager will alert for when it receives a message.

Urgent call enabled

Tick this option to enable the urgent call function. (UC)

Urgent call mode

Select *Normal* here for a normal alert length. Or you can choose *Continuous* which will make the pager alert continuously until a button is pressed. (manual alert reset)

Remind alert

If ticked, the pager will beep to remind the user if a message has not been read.

Unread message reminder

This refers to the time between unread message reminder beeps.

Msg display time

This is a time out setting. Enter the time in seconds you wish that the received messages should be displayed on the LCD screen.

Auto scroll hold time

The time between each scroll

New msg scroll times

The number of times the message will scroll on the screen

Start auto scroll time

The delay before messages will automatically start to scroll across the screen.

Low cell delay

The pager can beep at a set interval to indicate that it is low on power. Select 0 seconds if you want the low cell reminder to occur immediately. Select 16 if you want the reminder to occur 16 seconds after the pager has detected a low voltage condition.

Out range delay

This field can be set between *1* and *255* seconds. If the pager does not detect a POCSAG signal on its frequency within this time frame, it will sense that it is out of range and warn the user depending on the setting above.

LCD hold time

This is a time out setting. Enter the time in seconds after which the LCD will turn off (go to *Standby Mode*) if a button has not been pressed.

Contrast

Enter the contrast of the LCD here. The value must be between 8 and 63.

Auto spacing

Enable this option to allow word wrapping with long words.

Public folder mode

Do not modify this setting.

Public Call number

If *Visible* is selected here, the slot number assigned to each public message will be displayed on the LCD screen. Select *Invisible* to disable this option.

Repeat call check

Select between *Disable*, *CT Independent* or *CT Dependent*. When the pager receives a duplicate message the pager can be setup to alert the user by displaying the text <DUPLICATE>. There are three possible settings:

Disable – The pager will never display <DUPLICATE> even if it receives duplicate messages.

CT Independent – The pager will display <DUPLICATE> on the screen when it receives a duplicate message regardless of the beep code of the original and duplicate messages.

CT Dependent – The pager will display <DUPLICATE> on the screen only when it receives a duplicate message with the same beep code as the original message.

Repeat call rejection

This field refers to the duplicate message rejection timeout period.

Num Character Set

When receiving numeric messages, the Mercury pager may be programmed to receive and display extended numeric. Selecting “0-9,'NL'U'SP'-][“ will allow the only numbers to be displayed. Selecting “0-9,ABCDE'SP'” will allow limited alphanumeric characters to be displayed.

Character Set

Here you can choose the character set or language that the pager will receive the messages on.

Menu Language

Here you can choose the language the pagers menu structure will be shown in.

Hand Program

Tick this box to enable hand programming. This function is explained in a later section.

Password

A password can be installed to prevent unauthorized entry into the secret menu. This secret menu is used to edit/view the pager settings such as cap codes and frequency.

Quiet Sound

Tick this box to slightly reduce the alert volume of the beeper.

OTA

Tick this to enable Over the Air commands to be sent to the pager.

Serial No

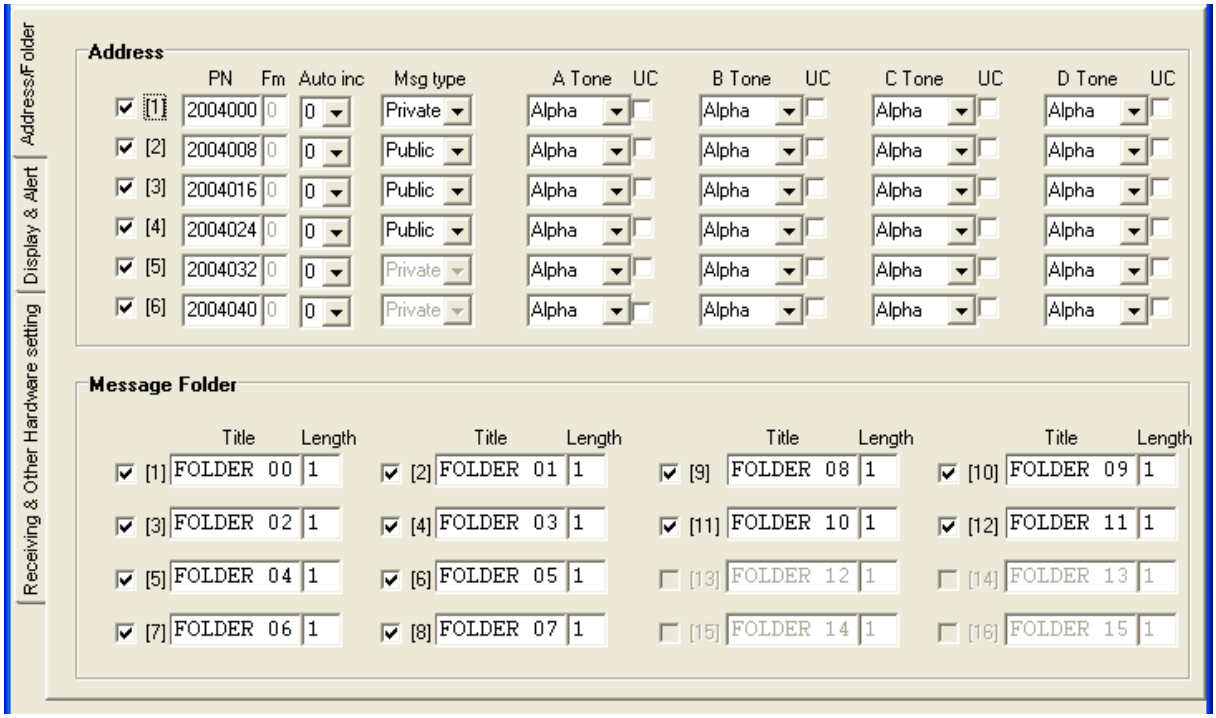
This is the stored serial number for the unit.

Tone Pattern

This section can be used to create custom beeps and tones on the pager. Each tone pattern is a 16 bit value. The tone can be changed for Beep codes A, B, C, D, power on and low cell warning. For example if beep code A was set to FFFC, the 16 bit value would be "1111111111111100". Each bit refers to 125ms of time. A 1 is a beep and a 0 means no beep. So in this example the beeper would turn on for 1.75s and then turn off for 0.25s.

5.1.3 Programming Options – Page 2

This section contains the various options that can be programmed into the pager.



Address

The Mercury pager has capacity for six cap codes. Within the programming software, there are many configurable options for each cap code. Each is described below.

Enable/Disable Tick box

This field is used to enable or disable the adjacent cap code. This is useful, as a cap code can be set up ready for use at any time, but not be actually activated. Place a ✓ in this tick-box if the pager is to respond on this address. Clear the tick-box if the pager is not to respond to this address. At least one address will need to be enabled for the pager to function.

PN & Fm

Pagers require an identification address similar to a mobile phone number in order to receive messages. The Mercury pager has six such addresses that it can respond to. Enter the cap code here. The text box after the cap code shows which frame the cap code is in. Ideally the eight frames should be the same value. The easiest way to achieve this is to make the cap code jump by a value of eight.

I.e.: cap code #1- 0000008, cap code #2- 0000016, cap code #3- 0000024, cap code #4- 0000032 all reside on the same *frame*.

IMPORTANT: To conserve battery life, ensure all cap codes are on the same frame.

Auto inc

Each time *WriteToPager* is clicked, the software will auto-increment the cap code by the value in this drop-down menu.

Msg Type

Select the message type here. Select between *Private* and *Public*.

⚠ WARNING: In most cases (onsite paging) all cap codes should be set to Private. If it is set to Public, messages wont be able to be deleted & a P icon will be displayed.

Private: When this option is used, the message has been sent to the pager for the users attention. The pager will beep or vibrate on receipt of a message depending on the call type.
Public: When this is used the message will be sent to a mail box. This option would be used if you set a cap code to receive information reports (weather, statistics, system status etc)

See the fields below for more information.

A/B/C/D Tone

In addition to a cap code, pagers may also be sent call types. Most pagers respond to four specific types A, B, C or D. Each of these call types can then be configured to receive and display (if applicable) messages in alphanumeric, numeric, tone only format or be disabled.

UC

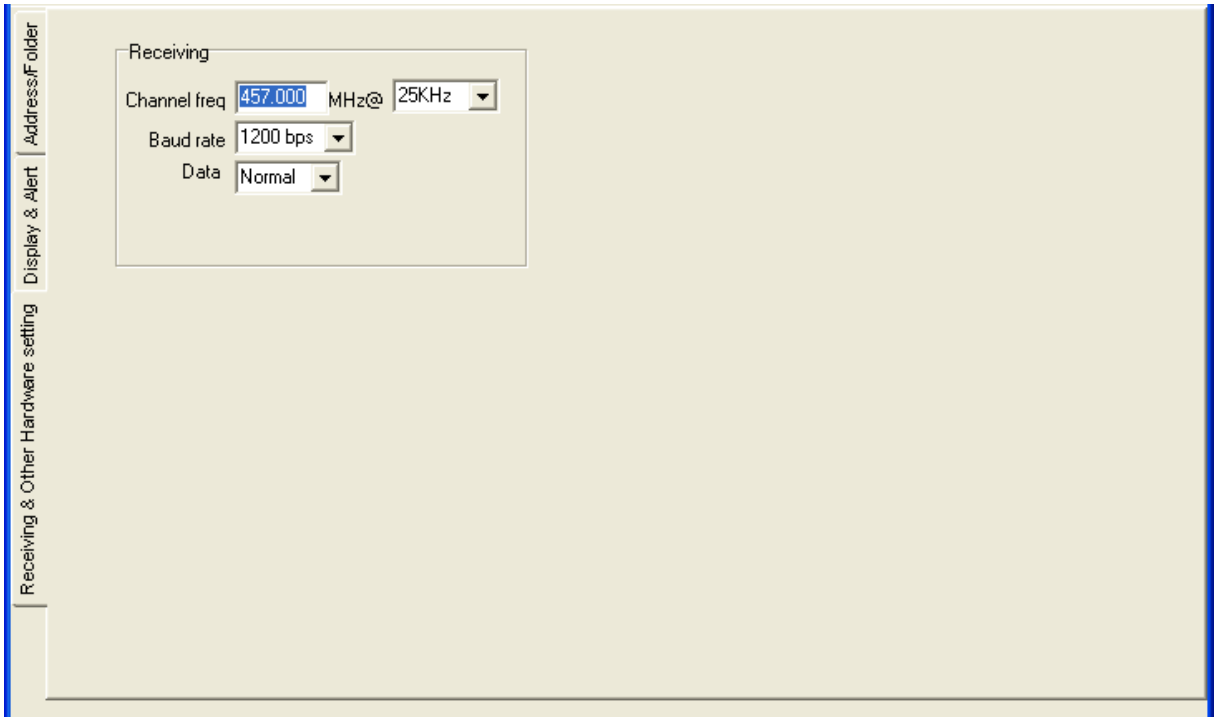
Tick the Urgent Call cap codes. The behavior of these urgent cap codes is determined by the Urgent call fields on the previous screen.

Message Folder

The Mercury has capacity for 16 mail drop folders for use with wide area paging. Each folder is individually configured here. Each mail box folder can be assigned an alphanumeric name. Enter this information here. For onsite paging it is recommended that all these options are unticked.

5.1.4 Programming Options – Page 3

This section contains the various options that can be programmed into the pager.



Channel freq

This is the frequency that the pager will receive on. This must match the frequency of your transmitter in order to receive messages. If you a programming a crystal pager, the frequency will be fixed to the labeled frequency.

Baud rate

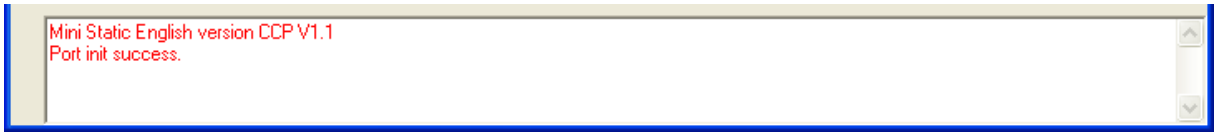
This represents the POCSAG baud rate. This setting must match the paging terminal.

Data

Choose between *Normal* or *Inverse* POCSAG polarity here. This must match the settings on the paging terminal.

5.1.5 Status Window

This window located at the bottom of the main screen, shows any important messages that the software has to report. These can include error messages, programming status or help information.



6. APPENDIX

Contact your Place of Purchase

A Commtech Wireless Authorized Distributor or Dealer sets up most systems. Contact your place of purchase with inquiries beyond the scope of this manual.

This Product is Not Field Serviceable

Should a fault develop with the hardware or software, contact your place of purchase for the most appropriate form of action. Do not attempt to open or repair any of the products as this may void any warranty.

6.1 Specifications

Note: Specifications subject to change to any notice

Electrical Specification

Rx Frequency 135-175, 276-284, 406-478, 925-932

Technical Specification

Code Format.....POCSAG
Bit Rate..... 512/1200/2400bps
Number of Cap codes..... 6
Channel Space Receiver:..... 12.5/25KHz
Modulation Method .....FSK-NRZ
Maximum Sensitivity.....512bps 5mV/m
.....1200bps 7mV/m
.....2400bps 9mV/m
Optimal Deviation ..... +/- 4.5KHz
Frequency Stability .....+10ppm (VHF), 5ppm (UHF), 3ppm (930 MHz)
Selectivity .....>65dB
Image Rejection .....>52dB
Spurious Rejection .....>60dB
Intermodulation .....>50dB
Alert Tone Level .....More than 75dB in 30cm distance
LCD .....8 line x 21chars or 4 line x 17 chars
Max Messages 60
Max chars per message 500
Backlight.....White LED

Mechanical Specification

Unit size (excluding antenna) .....99mm(L) × 99mm(W)× 24mm(H)
.....3.9 inch(L) x 3.9inch(W) x 1inch (H)
Weight ..... 100grams / 3.5oz
No. of Keys:..... 4